

Information Sheet for Math 307 Winter 2022

Class meets: MTRF 2:00 - 2:50 pm in BH 215

Credits: four credits

Teacher: Branko Ćurgus, Professor of Mathematics

Office Hour: MTRF 11 am or by appointment in BH 184a or see Canvas for a Zoom link

Email: curgus@wwu.edu

Course website: http://faculty.wwu.edu/curgus/Courses/307_202210/307.html

Goals: In this course, students will be introduced to the computer program *Mathematica*. Such programs are known as computer algebra systems (CAS). The goal of the course is to get students to use this program for numerical, symbolic and graphical computations and simulations, and to teach students the basics of *Mathematica* programming. I believe that these goals are best achieved when *Mathematica* is used to explore interesting mathematics.

Organization: The class requires intensive computer use. You will receive two emails:

- **The First** will inform you how we will share files using <https://www.dropbox.com>
- **The Second** will explain how to access *Mathematica* using remote log-in to Western's computers.

A lot of useful information about *Mathematica* is stored in the folder:

\307_Files

This folder is being shared with all students in Math 307 on Dropbox.

Please read the file

00_Read_me_307_Files.pdf

which explains the structure of the folder \307_Files. The most important information is that the homework assignment will be posted as *Mathematica* notebooks in the folder

\307_Files\Assignments

Material: Basic information about *Mathematica* is in the file `Primer_12.nb` located in the folder

\307_Files\2022.

Another source of information is the class website.

This is a class with a heavy homework load. Do expect to spend many hours per week working on the assigned problems. The class is not just about learning a computer algebra system *Mathematica*. I consider *Mathematica* to be just a tool that enables you to work on meaningful mathematical problems. The nature of any meaningful problem is that it encompasses a certain level of uncertainty. And the beauty of it is that with a certain amount of intellectual effort, this uncertainty can be overcome. This takes time. But, without putting in one's own effort, one can not develop higher-order thinking skills: critical and creative thinking, ability to analyze, conjecture, synthesize, evaluate, ...

Working with computers, in particular when we try to do sophisticated stuff often leads to unexpected difficulties. I strongly believe that the benefits overwhelmingly outweigh the difficulties. I am dedicated to help you overcome the difficulties. Please do not allow to get frustrated with neither *Mathematica* nor mathematics that I assign for homework. If you cannot make progress after what you consider reasonable effort report your problem on **Discussions** on **Canvas** and a colleague from class or I can help you get going.

Assignments: There will be three assignments. The third assignment replaces the final exam. The due dates for the assignments will be announced on the class website. An assignment will be due approximately ten days after it has been posted. Your finished assignment should be deposited in your folder in Dropbox which you shared with me:

\307_Yourlastname

The file (notebook) with your homework should be named using your last name, the underscore `_`, the capital letter `A` and the assignment number. For example, my first assignment notebook should be named `Curgus_A1.nb`

Please use the folder `\307_Yourlastname\` only for your Math 307 assignments and no other files. You will receive an email from me containing more details about sharing a folder with me on Dropbox.

Assignment notebooks: ➤ The notebook with your assignment should be named using your last name, the underscore `_`, the capital letter `A` and the assignment number. For example, my first homework should be named `Curgus_A1.nb`

- Your homework notebooks should be organized neatly. A notebook should start with a title cell. Individual assigned problems should be presented as sections.
- Each problem should contain a sufficient amount of text so that I can make sense of what is being presented. If I ask a specific question in a problem, then that question should be answered by a specific complete sentence. The answer should be followed by a justification.
- The notebooks should be saved with all output deleted (click `Cell`, then `Delete All Output`).
- You should make sure that all the calculations evaluate properly. A good way to test this is to open your notebook and evaluate the entire notebook by clicking `Evaluate Notebook` in the `Evaluation` menu.

Here is a list of common mistakes in homework notebooks:

- Text in input cells. (Text should be put in special “text” cells. Or if the text is included in an input cell, then it should be commented out in `(* *)`.)
- *Mathematica* reports `Null` in Graphics output. (This error occurs when an empty space is included in a list of graphics objects.)
- If several students submit identical code for a particular problem, then all students with that code will receive partial credit only.
- Homework includes material that is not directly related to your solutions. There is no need to repeat the statements of the problems in your notebook. Answer all the questions and present your solutions in a “teacher-friendly” way.
- Claims not justified by mathematical arguments, *Mathematica* calculations and pictures.
- Answers to specific questions are not sufficiently specific.
- The names of the functions and the variables not cleared before the definition.

You: The work that you submit in your assignments must be your own. You should put a special effort into making your assignments truly your own. The best way to do this is to have your original solution that will differ from the solutions of others. If you have gotten a significant help from another student, or if a solution is a result of collaboration, then you must find your own way of presenting and illustrating that solution. No two illustrations that a certain command does what it is expected to do should be the same. The presentation of solutions in your homework should be your own and it should differ from other presentations.

If you end up using a formula or a piece of particularly original code written by another student, acknowledge that by including the name of the student preceding her or his work. Please be specific, by saying something like: “The following code is written by ...” Have in mind that formulas and code can always be improved or modified; you can individualize them.

A homework without original individual contribution will receive only partial credit.

Assessment: Students will be assessed on the quality of the assignments submitted. Each assignment will be graded by an integer between 0 and 100. This number will reflect

- mathematical accuracy and completeness of your work and quality of justifications offered for your claims,
- accuracy, efficiency, and completeness of your *Mathematica* code,
- organization of your homework notebook and your original contribution.

Your grade for the Mathematica part will be the average of the three grades received on the assignments. Your final grade will be the average of the MatLab and the Mathematica part. The letter grade for the class will be assigned according to the following table.

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|--------------|--------------|-------------|--------------|--------------|--------------|
| F : 0 - 39 | D- : 40 - 44 | D : 45 - 49 | D+ : 50 - 54 | C- : 55 - 59 | C : 60 - 64 |
| C+ : 65 - 69 | B- : 70 - 74 | B : 75 - 79 | B+ : 80 - 84 | A- : 85 - 89 | A : 90 - 100 |

Academic Honesty Policy: Academic dishonesty is not tolerated at Western Washington University. Representing the work of another as one's own is an act of academic dishonesty. For a full description of the academic honesty policy and procedures at Western, see Appendix D in the University Catalog.

Flexibility Statement: This syllabus is subject to change. Changes, if any, will be announced in class or online. Students will be held responsible for all changes.

Syllabi@WWU: Please go to <https://syllabi.wvu.edu/> where you will find Syllabi Policies for Students and Campus Resources for Students